Question: https://leetcode.com/problems/multiply-strings/

The comments explains the code itself.

We consider each digit from s1 and multiply it with s2.

We don’t only consider the digit from s1 we consider them with their place values; like if we consider 3 from 732 then it will be 30 not 3, and how we achieve that?

We achieve that by adding n number of zeros to the multiplied result of 3 and s1.

‘n’ is the index of 3 from right side as per 0 based indexing.

Now we add this multiplied result one by one.

Code:  
class Solution {

public String multiply(String s1, String s2) {

StringBuilder res=new StringBuilder();

for(int i=s1.length()-1; i>=0; i--){

int n1=s1.charAt(i)-'0', carry=0;//we take 1 digit from s1 at a time from right side

String subres="";

for(int z=s1.length()-1; z>i; z--){

subres+='0';//we add zeros to the right side of the result based on the digits position in s1 from right side based on 0th index, this is done because the plce value of each digit increase by 10's power

}

//now we multiply s2 by each digit of s1.

for(int j=s2.length()-1; j>=0; j--){

int n2=s2.charAt(j)-'0';

int p=n1\*n2;

p+=carry;

subres=(p%10)+subres;

carry=p/10;

}

if(carry>0)subres=carry+subres;// if there is a carry from the multiplication which exceeds length of s2 the add it, e.g, 4x3=12 here 1 will be the extra carry

res=add(res, subres);// now we add res and subres

}

int i=0;

//to remove leading zeroes; like if we multiply 9859 by 0 answer would be 0 not 0000

while(i<res.length()-1){

if(res.charAt(i)!='0') break;

System.out.println(res.charAt(i));

res.deleteCharAt(i);

}

// convert to String

return res.toString();

}

public StringBuilder add(StringBuilder s1, String s2){

int i=s1.length()-1, j=s2.length()-1, carry=0;

String res="";

while(i>=0||j>=0){

int n1=i>=0?s1.charAt(i)-'0':0;

int n2=j>=0?s2.charAt(j)-'0':0;

int sum=n1+n2+carry;

res=(sum%10)+res;

carry=sum/10;

i--;

j--;

}

if(carry>0)res=carry+res;

return new StringBuilder(res);

}

}

Github Link :<https://lnkd.in/ecwtJeaz>